

Description of *Heleophryne natalensis*, a
New Batrachian from Natal; and Notes on
Several South African Batrachians and
Reptiles.

By

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With Plate XXXIX.

ON October 22nd, 1912, the Rev. Father P. Boneberg, of Mariannhill Monastery, Pinetown, discovered some remarkable tadpoles at Krantzklouf, Natal, some of which he preserved alive until, about a month afterwards, one of them had become a moderate-sized frog. This he forwarded to me as a species of *Heleophryne*.

On comparing with typical specimens of *H. regis Hewitt* from Knysna I believe it to be a very distinct species, for which I propose the name of *Heleophryne natalensis*. This is the second new species of frog discovered in Natal by Fr. Boneberg within the last year; his first discovery, *Natalobatrachus bonebergi Hewitt* and *Methuen*,¹ representing a hitherto undescribed genus.

It is worthy of remark that these two Natal frogs, though members of different families, share a peculiarity not found in any other S. African frog, viz. the possession of triangular or sub-triangular discs at the tips of the fingers.

The present record is interesting as it considerably extends the known range of this isolated genus, which is the only *Cystignathid* known to occur in Africa, and hitherto has

¹ Hewitt, J., and Methuen, P. A., 'Trans. Roy. Soc. South Africa,' vol. iii, p. 107, pl. vii, 1912.

been recorded only from Knysna and the Stellenbosch neighbourhood.

It may be added that eighteen months ago I ventured to predict that "the genus will be found to occur in the forest region of the whole coastal strip of Cape Province at least."¹

The Rev. Fr. Boneberg has kindly supplied me with the following interesting notes on his discovery of these tadpoles, which are characterised by possessing a well-developed oral sucker :

"Five specimens were taken at an altitude of 1500 feet in a tributary of the Krantz Kloof River on October 22nd, 1912; three of them were without legs, the other two had each four legs.

"In life they are greyish, becoming darker on the back, where, however, there are some small pale dots; on the sides of the body, and especially of the tail, are some large rust-coloured spots, which in older specimens become almost golden, particularly round the head; the legs are marked with distinct blackish cross-bands.

"They were found only in one spot, a pool of little depth and small dimensions; the tributary flows through virgin forest along a valley of the Krantz Kloof, and has in its course several falls and cascades, the bed of the stream being largely covered with boulders. The tadpoles were observed hanging on rocks beneath the water, others being at the bottom of the river; when disturbed they hid under the rocks.

"One of the four-legged specimens was kept alive in a glass jar; in about ten days the whole tail was absorbed and the little frog began to take flies.

"More examples were secured on November 11th, but no adult frogs could be found though they were searched for. The tadpoles were seen hanging on rocks as before, and they appeared to prefer the neighbourhood of running water. The food probably consists chiefly of the lower forms of plant-life found growing on the submerged rocks. Most of the specimens taken on this occasion died during the journey to

¹ Hewitt, J., 'Annals of the Transvaal Museum,' vol. iii, p. 33, 1911.

Mariannahill, and the survivors did not thrive in the confinement of a glass jar. They could attach themselves so firmly to the glass by means of their oral sucker that it was most difficult to remove them."

With the material at hand, which consists of only one young frog and several tadpoles, it is not possible to give as complete a diagnosis of the species as is desired; but there are certain well-marked differences between this species and *H. regis* Hewitt.¹

Heleophryne natalensis sp. n.

YOUNG FROG.—Ventral surface is smooth, while in *regis* it is granular.

The tibio-tarsal articulation of the adpressed hind limb reaches the eye, while in *regis* it reaches the tip of the snout, or between the eye and the tip of the snout.

The fourth finger is considerably longer than the second, the latter not extending as far as the last phalangeal articulation of the fourth finger, while in *regis* the fourth finger is only a little longer than the second, which extends a little beyond the last phalangeal articulation of the fourth finger. The discs at the tips of the fingers are a little smaller than those of *regis*.

Tympanum is hidden in a strong sigmoidly curved fold passing from the eye to the shoulder.

Fingers free. Toes a trifle more than half webbed.

A light streak occurs between the eyes, bordered behind by a black band; the back has numerous rounded, blackish spots with white centres; upper lip on its anterior half bears whitish spots more or less vertically arranged; two or three white spots are present at the angle of the jaw; limbs have indistinct dark cross-bars; belly is pale in the centre, throat and under surface of limbs are dark.

Total length from snout to vent 32 mm., but the species probably reaches a much greater size.

¹ Hewitt, J., 'Annals of the Transvaal Museum,' vol. ii, p. 45: description of *H. regis*.



The type is in the Museum of the Monastery at Mariannahill.

The characters which separate this species from *H. regis* will also serve to distinguish it from *H. purcelli* *Sclater*.¹ I may here mention that the specific validity of *regis* is not absolutely certain; *H. purcelli*, on which the genus was founded by Mr. W. L. Sclater, is expressly stated both in the generic and specific descriptions to have the toes completely webbed, yet in the figure accompanying the description the toes are not thus represented, being apparently about three-fourths webbed; in *regis* they are scarcely more than half webbed.

TADPOLE.—The most striking feature of the tadpole is the presence of a large circular oral disc ventrally situated; this is strongly suctional in function. In a specimen in which the hind-limbs are just commencing to push through the skin this disc is 10 mm. in diameter.

The mouth itself is widely open and subquadrangular in shape. The upper half of the beak is absent; the lower half is black but not strongly developed. The labial teeth are disposed in a single row in each series; there are four upper continuous series, the two outer of which are weakly developed; the first lower series next to the beak is narrowly interrupted in the middle, but all the others are continuous, four strongly developed rows being followed by ten more weakly developed series. The lips are entirely bordered with small fleshy papillæ.

The nostril is nearer to the eye than to the end of the snout, which is large, broad and rounded. The spiracle is sinistral, directed backwards and slightly upwards, its opening being nearer to the vent than to the tip of the snout. The vent seems to be median; this cannot be positively affirmed owing to the appearance of hind-limbs in the specimen.

The tail is fairly long and obtusely pointed; its crests are

¹ Sclater, W. L., 'Annals of the South African Museum,' vol. i, p. 111.

not very well developed, neither of them at this stage extending as far forwards as the vent. In older specimens a feebly developed adipose extension of the dorsal crest reaches anteriorly to a point just above the vent. The caudal crests are without a pigmentary network, but the upper one has a few black lines; the end of the tail is blackish, but elsewhere it is not strongly pigmented.

Measurements: from tip of snout to vent, 27 mm.; from vent to tip of tail, 33 mm.; greatest depth of tail, including crests, 9 mm.

At a very late stage of the metamorphosis, when both fore- and hind-limbs are well developed, the oral disc is still large and conspicuous though the teeth series are absent.

No such tadpole as that just described has hitherto been recorded from South Africa. The sucker-like oral disc has long been known to occur in tadpoles of Ranids inhabiting the mountain streams of Borneo, Java and Burma; but in most cases the greater part of the disc seems to be derived from the sub-buccal adhesive organ of the young larva, which is evidently not the case in *Heleophryne*. The caudal crests in those tadpoles, as in *Heleophryne*, are only slightly developed anteriorly.

ANURA.

Megalixalus fornasinii *Bianc.*

Megalixalus fornasinii *Bianc.*; Boulenger, Brit. Mus. Cat. Batr. Sal., p. 130. 1882.

With this species I now include *M. spinifrons* *Cope*. A single specimen taken by Fr. Boneberg at Mariannahill in May, 1911, has no trace of tubercles dorsally; but along the pale dorso-lateral bands there are some dark spots which possibly represent the tubercles of other specimens. The Natal Museum has an example from Knysna in which the tubercles of the dorsal surface are sparsely scattered and not concentrated on the snout.

Hemisus marmoratum Pet.

Hemisus marmoratum Pet.; Boulenger, Brit. Mus. Cat. Batr. Sal., p. 178. 1882.

Taken at Tsessebe Siding, Francistown (E. C. Wilmot); the first record of this species from S. Africa.

Rana natalensis Smith.

Rana natalensis Smith; Boulenger, Brit. Mus. Cat. Batr. Sal., p. 30. 1882.

Taken at Pirie, November, 1912 (Miss F. Ross); the most western record for this species.

OPHIDIA.

Calamelaps polylepis Boc.

Calamelaps polylepis Boc.; Boulenger, Brit. Mus. Cat. Snakes, III, p. 246. 1896.

? *Calamelaps warreni Boul.*; Annals Natal Mus., I, p. 234. 1908.

This species has not previously been recorded as such from S. Africa. It was first known to me from Hectorspruit (F. Streeter), the specimen having 194 ventrals; more recently Mr. G. Arnold, of the Rhodesia Museum, sent me the specimen from Empandene (Rev. J. O'Neil), which was recorded by Mr. Chubb¹ under the name of *C. concolor Smith*, but which now proves to be a very fine example of *C. polylepis*, having twenty-one rows of body scales, 200 ventral scales and a total length of 690 mm. A year ago I recorded *C. warreni Boul.* from Empandene, basing the determination on a specimen only 350 mm. long and having nineteen rows of body-scales and 172 ventrals²; this in all probability is merely the young of the same species as the former specimen. Now, the type of *C. warreni* is recorded as only 235 mm. long, and is almost certainly a very young specimen. Judging from his recently published key to the S. African Ophidia, Mr. Boulenger³ is

¹ Chubb, E. C., 'Annual Report Rhodesia Museum,' 1909.

² Hewitt, J., 'Records Albany Museum,' ii, p. 276.

³ Boulenger, G. A., 'Ann. S. African Mus.,' v, p. 516.

satisfied that the chief distinguishing feature of *C. warreni* is the nineteen rows of body-scales and a comparatively small number of ventrals (161-174); but if these are, as I believe, merely juvenile characters, *C. warreni* will probably have to be dropped. Apart from these characters the only claim to specific distinction that can be accorded thereto lies in the fact that the second upper labial is in contact with the pre-ocular, whereas in *polylepis* the second upper labial is in contact with the nasal; it is hardly likely that these characters will prove to be of specific value.

Amplorhinus nototania Günth.

Amplorhinus nototania Günth.; Boulenger, Brit. Mus. Cat. Snakes, iii, p. 125. 1896.

The Rhodesia Museum has this species from Matetsi (a locality between Bulawayo and Victoria Falls); not previously recorded from S. Africa.

Psammophis jallæ Peracca.

Psammophis jallæ Peracca; Boll. Mus. Torin., no. 255. 1896.

The Rhodesia Museum has this species from Springvale near the Matoppos. Peracca's original description and figure do not clearly indicate the position of this species within its genus, and Mr. Boulenger in his key ranges it next to *crucifer*, to which it is not closely allied; it really belongs to the *furcatus* and *notostictus* section with regard to the nasal character, and, indeed, it may have to be regarded only as a 15-scaled variety of *furcatus*.¹

The colour characters of the specimen are as follows: in the mid-dorsal region a broad, brown, longitudinal band with dark brown margin, then on each side a thin yellow streak half a scale thick, below which comes a reddish-brown band 2-2½ scales thick, the ventral surface and the lower half of the outermost row of scales being pale yellow.

¹ Hewitt, J., 'Records of the Albany Museum,' ii, p. 275.

LACERTILIA.

Eremias burchelli *Smith*.

Eremias burchelli *Smith*; Boulenger, Brit. Mus. Cat. Lizards, iii, p. 95. 1887.

Maclear (Miss F. Ross): the most eastern record known. Apparently it may occur in the same locality as its near ally, *E. capensis*, for the late Mr. P. D. Morris sent me both species from Victoria West, where *capensis* is common.

Ichnotropis capensis *Smith*.

Ichnotropis capensis *Smith*; Boulenger, Brit. Mus. Cat. Lizards, iii, p. 78. 1887.

Mariannahill (Fr. P. Boneberg): the first record of this species from Natal.

I. longipes *Boul.*¹ seems to me only a variety of *capensis*, and in all probability the two forms will be found to merge completely. According to Mr. Boulenger's key, *longipes* may be distinguished by the greater length of the hind-limb, which, when adpressed to the body, reaches as far as the ear or beyond; this seems to hold good for the males; but in female examples from Marandellas, which is near the type locality of *longipes*, the adpressed hind-limb only reaches to the axil. In any case the name *longipes*, even as a variety, is probably inadmissible, seeing that this form was apparently the one described by Peters² under the name of *I. macrolepidota*. It is clearly stated in the description that the claw of the fourth toe reaches up to the ear opening. In the British Museum Catalogue, *macrolepidota* was reduced to a synonym of *capensis*.

Mabuia occidentalis *Peters*.

Mabuia occidentalis *Peters*; Boulenger, Brit. Mus. Cat. Lizards, iii, p. 200. 1887.

Beaufort West (P. Whatits): the most eastern record in Cape Colony.

¹ Boulenger, G. A., Proc. Zool. Soc., 1902, II, p. 17.

² Peters, W. C. H., 'Reise nach Mossambique,' iii, p. 46, 1882.

Pachydactylus punctatus Peters.

Pachydactylus punctatus Peters; Boulenger, Brit. Mus. Cat. Lizards, i, p. 206. 1885.

So many species of the *punctatus-ocellatus* section of *Pachydactylus* have been described within recent years that it is highly desirable to have better knowledge of the characters of *punctatus* itself. A series from Serowe presents the following characters.

Head rather depressed but not strongly so. Mr. Boulenger,¹ who identifies the Serowe species as *punctatus*, places that species in the group characterised by "head very convex." Snout rather long, about $1\frac{2}{3}$ as long as the eye, the scales thereon several times as large as those on the back of the head; naso-rostrals in contact; rostral $1\frac{1}{2}$ to 2 times broader than deep, not entering the nostril; seven, rarely eight, upper labials, and six, rarely seven, lower labials, the first upper labial only very slightly separated from the nostril; ventral body-scales somewhat larger than the dorsal; ear opening rounded; four subdigital lamellæ; brownish above, with small dark spots and vermiculations.

P. pardus Sternf.,² from Warmbad, G.S.W.A., is said to agree with *purcelli* in respect to the rostral, which is twice as broad as deep and bounds the nostril, but differs in the rounded ear opening and the longer snout, which is $1\frac{2}{3}$ times the diameter of the eye; it differs from *serval* in the larger eye and broader rostral; in *serval* this scute is a little broader than deep and does not enter the nostril.

¹ Boulenger, G. A., 'Ann. S. African Mus.,' v, p. 463.

² Sternf., 'Mit. a. d. Zool. Mus. Berlin,' 1911, p. 398.

EXPLANATION OF PLATE XXXIX,

Illustrating Mr. John Hewitt's paper, "Description of *Heleophryne natalensis*, a New Batrachian from Natal; and Notes on Several South African Batrachians and Reptiles."

FIG. 1.— $\times 2$. *Heleophryne natalensis* *sp. n.* Young frog.

A. Ventral view, smooth surface.

B. Dorsal view; *e.* eye; *n.* nostril; *s. f.* sigmoidly curved fold hiding tympanum.

FIG. 2.— $\times 15$. *Heleophryne regis* *Hewitt*. Ventral view, granulated surface.

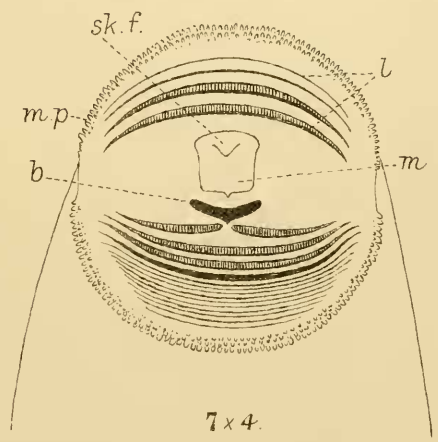
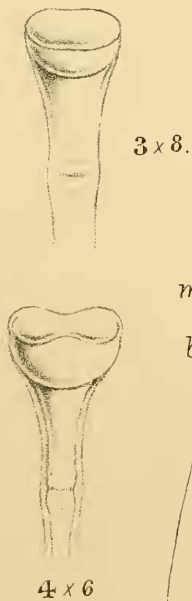
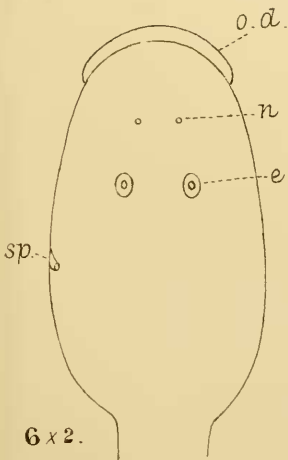
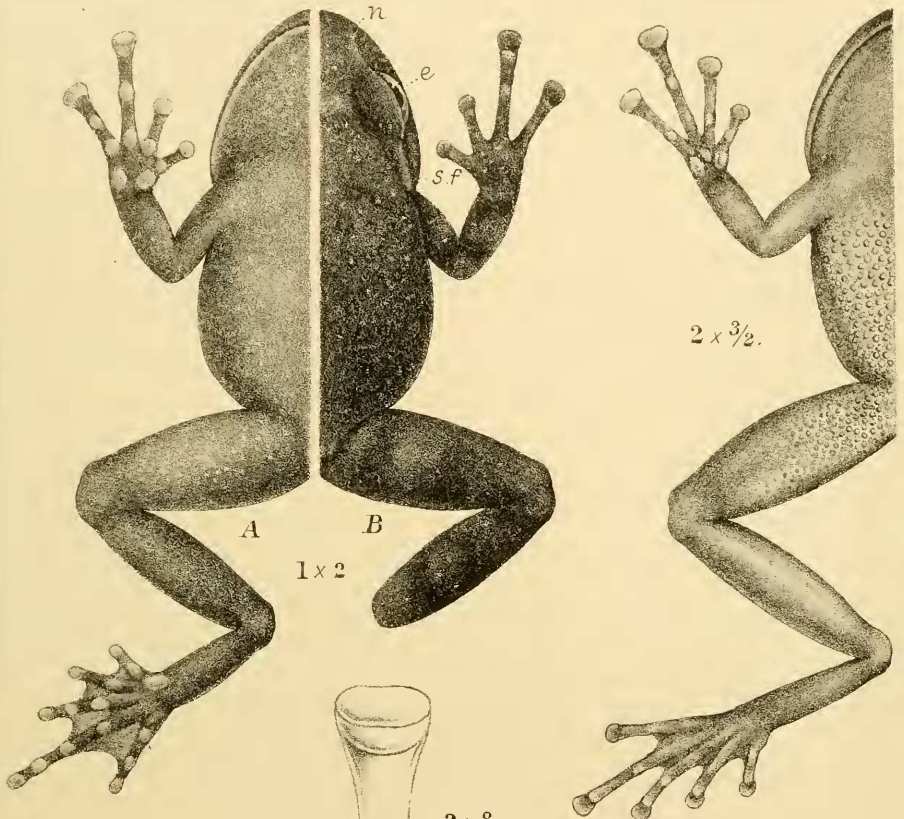
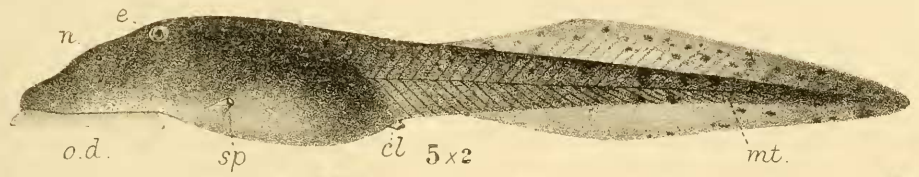
FIG. 3.— $\times 8$. *Heleophryne natalensis*. Ventral view of distal end of third finger.

FIG. 4.— $\times 6$. *H. regis*. Ventral view of distal end of third finger.

FIG. 5.— $\times 2$. *H. natalensis*. Side view of tadpole; *cl.* cloacal aperture; *e.* eye; *mt.* myotomes of tail; *n.* nostril; *o. d.* oral sucker; *sp.* spiracle.

FIG. 6.— $\times 2$. *H. natalensis*. Dorsal view of front portion of tadpole.

FIG. 7.— $\times 4$. *H. natalensis*. Oral sucker of tadpole viewed ventrally; *b.* beak; *l.* labial rows of teeth; *m.* mouth; *m. p.* marginal papillæ; *sk. f.* skin-fold projecting downwards within the oral cavity.



Hewitt & Green del.

J.Green lith.

HELEOPHRYNE NATALENSIS sp.n. Figs.1, 3, 5-7.

H. REGIS Hewitt, Figs. 2, 4.